REMARKS

Upon entry of the present amendments, claims 1, 38, 41 and 50-54 will be pending in the application. Claims 2-37, 39-40, and 42-49 have been cancelled. Claims 1 and 50 have been amended. No new matter has been added by these amendments.

Formalities

Election/Restriction

Claims 5-37, 39-40 and 42-49 have been cancelled as being drawn to a non-elected invention. Claims 2-4 have been cancelled by this response. Claim 1 has been amended to eliminate language referring to variants of SEQ ID NO:20. Claims 1, 38, 41 and 50-54 are pending. As claim 1 has been amended, Applicants ask that the Examiner consider claims 50-54 in view of these amendments.

Specification

The Examiner has objected to the disclosure because of an embedded hyperlink and/or other form of browser-executable code. Applicants have amended the specification to remove the hyperlink, thus Applicants believe that the disclosure, as amended herein, is in compliance with MPEP § 608.01.

Claim Rejections

Examiner's Position

In the Office Action dated December 4, 2002, the Examiner made the following rejections:

(1) Claims 1-4, 38, and 41 were rejected under 35 U.S.C. §112, second paragraph, for being indefinite;

(2) Claims 1-4, 38, and 41 were rejected under 35 U.S.C. §112, first paragraph, for lack of written description and utility;

(3) Claims 1-4, 38, and 41 were rejected under 35 U.S.C. §101 as not supported by a specific, substantial, or credible utility; and

(4) Claims 1-4, 38, and 41 were rejected under 35 U.S.C. §102(b) as being anticipated.

Applicants traverse each of these rejections as follows.

Rejection under 35 U.S.C. § 101

Claims 1-4, 38, and 41 are rejected for lack of utility. The rejection is traversed.

The requirements for satisfying the utility requirement are explained in the Manual of Patent Examination Practice (MPEP) 8th Edition, which states that only one credible assertion of specific and substantial utility need be specified for an invention:

> **Specific Utility**
>
> A "specific utility" is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention. Office personnel should distinguish between situations where an applicant has disclosed a specific use for or application of the invention and situations where the applicant merely indicates that the invention may prove useful without identifying with specificity why it is considered useful. For example, indicating that a compound may be useful in treating unspecified disorders, or that the compound has "useful biological" properties, would not be sufficient to define a specific utility for the compound. Similarly, a claim to a polynucleotide whose use is disclosed simply as a "gene probe" or "chromosome marker" would not be considered to be *specific* in the absence of a disclosure of a specific DNA target. A general statement of diagnostic utility, such as diagnosing an unspecified disease, would ordinarily be insufficient absent a disclosure of what condition can be diagnosed. Contrast the situation where an applicant discloses a specific biological activity and reasonably correlates that activity to a disease condition. Assertions falling within the latter category are sufficient to identify a specific utility for the invention. Assertions that fall in the former category are insufficient to define a specific utility for the invention, especially if the assertion takes the form of a general statement that makes it clear that a "useful" invention may arise from what has been disclosed by the applicant. *Knapp v. Anderson*, 477 F.2d 588, 177 USPQ 688 (CCPA 1973).
>
> **Substantial Utility**
>
> A "substantial utility" defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities. For example, both a therapeutic method of treating a known or newly discovered disease and an assay method for identifying compounds that themselves have a "substantial utility" define a "real world" context of use. An assay that measures the presence of a material which

> has a stated correlation to a predisposition to the onset of a particular disease condition would also define a "real world" context of use in identifying potential candidates for preventive measures or further monitoring. Section 2107.01

Applicants submit that at least one substantial and specific utility exists for the claimed invention and is readily apparent based on the teachings of the specification.

The amended claims are drawn to an isolated polypeptide comprising an amino acid sequence of SEQ ID NO:20 or its mature form. The specification explains that this polypeptide corresponds to the polypeptide encoded by SEQ ID NO:19.

Applicants state in the specification that SEQ ID NO:20 is useful in treatment of patients suffering from cancer and other cell proliferative disorders (*See* page 48, lines 3-5). In the C.F.R. § 1.132 declaration, submitted herewith, Dr. Meera Patturajan shows the correlation of heightened expression of SEQ ID NO:19, the nucleic acid that encodes SEQ ID NO:20, in cancers involving the Central Nervous System. Thus, SEQ ID NO:20 could be used to diagnose and treat ovarian, lung, renal and brain cancers, along with other types of cancer. This constitutes a real substantial and specific utility.

The diagnostic utility of SEQ ID NO:20 is a specific utility. It is used to diagnose specific diseases, not diseases in general. The entire class of polypeptides could not be used to perform this diagnosis. The diagnostic utility of SEQ ID NO:20 is also a substantial utility. Being able to diagnose the specific pathologies associated with SEQ ID NO:20 is a "real world" utility as defined above. In view of the foregoing comments, reconsideration and withdrawal of the rejection of the lack of utility is requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-4, 38, and 41 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 2-4 have been cancelled, so the rejection is moot in regards to these claims.

With regard to claim 1, the Examiner notes that the recitation of "a mature form" renders the claim indefinite. The Examiner further asks, "[w]hat is the structural difference(s) between SEQ ID NO:20 and a mature form of SEQ ID NO:20?" The "mature" form of a polypeptide or protein is defined in the specification at page 49, line 11 to page 50, line 2 as arising from the

product of a naturally occurring polypeptide or precursor form or proprotein. The specification also discloses, at page 44, lines 27-29, that SEQ ID NO: 20 contains a signal peptide, which is cleaved between amino acids 22 and 23 of SEQ ID NO: 20. Thus, skilled artisans would recognize what the mature form of SEQ ID NO:20 would be. Accordingly, Applicants submit that claims 1-4, 38 and 41 are definite and therefore request that the 112 indefiniteness rejection be withdrawn.

The Examiner also notes that in claim 1, the recitation of "variant" renders the claim indefinite. To facilitate prosecution, Applicants have amended claim 1 so that it no longer recites variants of SEQ ID NO:20. Therefore, Applicants request that this rejection be withdrawn.

Rejection under 35 U.S.C. § 112, first paragraph

Lack of Written Description

Claims 1-4, 38, and 41 have been rejected under 35 U.S.C. § 112, first paragraph because the subject matter described in the specification did not reasonably convey to one skilled in the art that the Applicant had possession of the claimed invention at the time the application was filed. Claims 2-4 have been cancelled herewith, so the rejection is moot in regards to these claims.

Examiner alleges that these claims encompass proteins which vary substantially in amino acid compositions and length. (Office Action at page 3). As noted, to facilitate prosecution, Applicants have amended claim 1 to eliminate language referring to variants. Amended claim 1 is drawn to a polypeptide comprising an amino acid sequence of SEQ ID NO:20 or its mature form. Thus, Applicants assert that this rejection no longer applies to the claims, as amended. Therefore, Applicants request that this rejection be withdrawn.

Utility-Based Rejections

Claims 1-4, 36, and 39 have been rejected under 35 U.S.C. § 112, first paragraph because one skilled in the art would not know how to use the invention, since the claimed invention lacks utility. Claims 2 and 3 have been cancelled, so the rejection is moot with respect to these claims. Moreover, claims 36 and 39 have been cancelled as being drawn to a non-elected invention. Therefore, this rejection with regards to these claims is moot.

As Applicants have explained above, the claimed invention does have patentable utility. For these same reasons, Applicants also submit they have taught how to use the claimed invention.

Rejections under 35 U.S.C. § 102(b)

Claims 1-4, 38, and 41 have also been rejected for being anticipated by either Chang *et al.* J. Biol. Chem 269: 28227-28234, 1994. ("Chang") or U.S. Patent 5,658,882 ("Celeste"). The Examiner asserts that the claims, as filed, recite variants with various undefined structural similarities to SEQ ID NO:20, pharmaceutical comprising the proteins and a kit comprising the various proteins. According to the Examiner, Chang and Celeste disclose amino acid sequences that read on this definition of variant.

To facilitate prosecution, Applicants have amended claim 1 so that it no longer recites variants of SEQ ID NO:20 or its mature form. Therefore, this rejection is improper and should be withdrawn.

CONCLUSIONS

On the basis of the foregoing remarks, Applicants respectfully submit that the pending claims are in condition for allowance. If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

With no extension of time, this response is due March 4, 2003. No fees are believed due with this submission. The Commissioner is authorized to charge any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311, Reference No. 15966-750 (Cura-250).

Respectfully submitted,

March 4, 2003

Christina V. Karnakis. Reg. No. 45,899

Ivor R. Elrifi, Reg. No. 39,529
Attorney for Applicant
c/o MINTZ, LEVIN
One Financial Center
Boston, MA 02111
Tel: (617) 542 6000
Fax: (617) 542 2241

Version Marked to Show Changes

In the Specification:

The presence of identifiable domains in AMF1, as well as all other AMFX proteins, can be determined by searches using software algorithms such as PROSITE, DOMAIN, Blocks, Pfam, ProDomain, and Prints, and then determining the Interpro number by crossing the domain match (or numbers) using the Interpro website [(http:www.ebi.ac.uk/ interpro)]. DOMAIN results can then be collected from the Conserved Domain Database (CDD) with Reverse Position Specific BLAST analyses. This BLAST analysis software samples domains found in the Smart and Pfam collections.

In the Claims:

1. (Amended) An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) a mature form of an amino acid sequence of SEQ ID NO:20; and

(b) [a variant of a mature form of an amino acid sequence of SEQ ID NO:20, wherein one or more amino acid residues in said variant differs from the amino acid sequence of said mature form, provided that said variant differs in no more than 15% of the amino acid residues from the amino acid sequence of said mature form;

(c)] an amino acid sequence of SEQ ID NO:20[; and

(d) a variant of an amino acid sequence of SEQ ID NO:20, wherein one or more amino acid residues in said variant differs from the amino acid sequence of said mature form, provided that said variant differs in no more than 15% of amino acid residues from said amino acid sequence].

2-4. Cancelled

50. (Amended) A method of producing the polypeptide of claim 1, the method comprising culturing a cell under conditions that lead to expression of the polypeptide, wherein said cell comprises a vector comprising an isolated nucleic acid molecule comprising a nucleic acid

sequence [selected from the group consisting] of SEQ ID NO:19[2n-1, wherein n is an integer between x and y].

TRA 1768365v1